Jurnal Kesehatan Prima

http://jkp.poltekkes-mataram.ac.id/index.php/home/index

p-ISSN: 1978-1334 (Print); e-ISSN: 2460-8661 (Online

The Effect of a Continuous Nursing Care Program on the Quality of Life of Toddlers with Pneumonia, Parental Stress Levels, and Parental Satisfaction

Novi Enis Rosuliana[1]✉, Ely Mawaddah[2], Kusmiyati[3], Tetik Nurhayati[4], Mira Utami Ningsih[5] Happy Bandana Biswas[6]

[1,3,4]Poltekkes Kemenkes Tasikmalaya, Indonesia

[2,5]Poltekkes Kemenkes Mataram, Indonesia

[6]Faculty of Child Health Nursing National Institute of Advanced Nursing Education and Research (NIANER), Mugda, Dhaka-1214, India

✉ikhsanovi@gmail.com, Phone: +6281944942421

Received: 31 August 2024/Accepted:19 February 2025/Published Online: 28 February 2025

Abstract

Pneumonia is an acute infectious disease that occurs in toddlers caused by bacteria, viruses, and fungi. Risk factors for pneumonia are prematurity, BBLR, lack of exclusive breast milk, cigarette smoke, air pollution and congenital heart defects. The death rate of children under five in the world due to pneumonia in 2019 began to decline but the decline was lower than other infectious diseases. Data shows that pneumonia and diarrhea cause 2 million children to die each year. Toddler pneumonia in Indonesia is the second leading cause of death, with a mortality rate of 0.16% for toddlers, while West Java is among the 10 provinces with the most pneumonia cases, and Tasikmalaya Regency is among the 10 most regions with 1,814 cases of toddler pneumonia. Based on these data, appropriate management is needed to reduce the morbidity and mortality of pneumonia in toddlers. The research method is a quasi-experimental design of a pre-test posttest with a control group design. The population of all hospitalized toddlers, the number of 30 respondents for the intervention group and the control group used time-based accidental sampling. Data analysis was univariate and bivariate analysis using the Wilcoxon Signed Ranks Test and the Mann Whitney-U test. The research instrument used questionnaires, namely demographic data, Perceived Disease Severity Scale, childcare stress questionnaire, child quality of life questionnaire (PedsQLTM 4.0), and satisfaction questionnaire. The findings of this study demonstrate that the Continuous Nursing Care Program intervention had a statistically significant impact on improving the quality of life of toddlers with pneumonia (p-value: 0.007), alleviating caregiving stress (p-value: 0.006), and enhancing inpatient satisfaction (p-value: 0.011). Additionally, a significant improvement in inpatient satisfaction was observed within the control group (p-value: 0.044). These results provide strong evidence for the effective application of the Continuous Nursing Care Program in delivering high-quality nursing care for hospitalized toddlers with pneumonia.

Keywords: Continuous Nursing; Satisfaction; Quality of Life; Toddler Pneumonia; Stress

INTRODUCTION

An infectious disease that occurs in the lower respiratory system is called pneumonia. Pneumonia is caused by Streptococcus pneumoniae, and Haemophilus influenzae (Yadav et al., 2021). Pneumonia is closely related to the status of immunity as the body's defense against infection (Quinton et al., 2018). Pneumonia occurs mostly at the age of 29 days-11 months due to the function of the immune system, so microbacteria easily infect the body (Ali et al., 2019).

Toddler pneumonia causes a number of illnesses and deaths in toddlers, so it is called the main killer of toddlers. WHO data shows that pneumonia and

diarrhoea cause 29% of toddlers to die and 2 million children die each year (WHO, 2020). In 2019, the number of toddlers has decreased, but the progress in reducing the mortality rate of toddlers is lower than that of other infectious diseases (UN IGME, 2019).

Toddler pneumonia occurs a lot in developing countries, in Indonesia in 2018 there are 4 per 1000 live births, the mortality rate of toddlers with pneumonia or around 16%, so it is called the second largest killer of toddlers, because every hour there are 2 deaths of toddlers with pneumonia (UNICEF, 2019). Data from 2015-2018 showed that the number of cases of pneumonia in Indonesia increased by 500,000 per year, of which 425 patients died out of a total of 505,331 patients (Society et al., 2019). In 2020, the mortality rate of toddlers with pneumonia was 0.16% in infancy compared to the age group of 1-4 years (Kementerian Kesehatan Republik Indonesia, 2021). West Java in 2020 was included in the top 10 provinces with the most pneumonia for children under five with 18.9% of post-natal deaths and Tasikmalaya was the top 10 with the most pneumonia with 1.814 cases (Dinkes Jawa Barat, 2020). Based on the data, the incidence of under-five pneumonia is still high and needs special attention and treatment.

Pneumonia case services must be improved in the application of science-based nursing care, including programs in an effort to improve the quality of life of pneumonia toddlers. The Continuous Nursing Care Program model is a program that includes strengthening methods of treatment, prevention and management of pneumonia, so that it has an impact on the quality of life of patients (Liu et al., 2021a). In addition, the Continuous Nursing Care Program increases the provision of health education, provides skills for families and patients in handling pneumonia under five years, and increases the mental and emotional stability of parents (Zakeri et al., 2020). The results showed that the quality of life of children with pneumonia was closely related to the stress level of parents (Biswas et al., 2019). So the need for a care program that aims to improve the quality of life of toddlers, control parental stress with (Continuous Nursing Care Program). Previous research has demonstrated that effective nursing care planning plays a pivotal role in enhancing the quality of nursing care delivery for children with pneumonia. Enhancing the quality of nursing care delivery significantly contributes to better overall health outcomes in children with pneumonia (Chuga et al., 2024).

Based on this background, the research problems are in the form of: How the Continuous Nursing Care Program affects the quality of life of toddlers with pneumonia, stress levels and parental satisfaction in nursing services at SMC Hospital. Previous research has not discussed much about the variables of this research. The purpose of the study was to determine the influence of the Continuing Nursing Care Program on the quality of life of toddlers with pneumonia, stress levels and parental satisfaction in nursing services. The specific objective is to identify before and after the intervention in the intervention and control group in the form of: 1) the quality of life of the pneumonia toddler, 2) the level of parental stress, 3) the satisfaction of parents in nursing care, 4) the analysis of the influence of the Continuing Nursing Care Program on the quality of life of the toddler pneumonia, the level of stress and parental satisfaction in nursing services after the intervention. This research is very important to provide novelty in the treatment of pneumonia toddlers.

METHOD

Type of research: quantitative study of quasi-experimental *design pre test pos test with control group design*. The population was all inpatient toddlers at Singaparna Medika Citra Utama Hospital, children's inpatient room, the number of samples of 30 respondents, namely families with pneumonia toddlers

who are treated consists of intervention and control groups. Accidental sampling technique based on time, sample inclusion criteria: 1) Respondents are willing to participate in the study, 2) Toddlers with pneumonia, 3) Cooperative. Exclusion criteria, 1) Toddlers experience worsening conditions, 2) Toddlers do not comply with treatment, 3) Toddlers have congenital diseases. Instruments used: 1) demographic data questionnaire in the form of personal data of respondents of parents (Mother), 2) The Perceived Severity of Illness's Scale questionnaire, 3) Parenting Stress questionnaire, 4) *Pediatric quality of life* questionnaire (PedsQLTM 4.0), 5) Satisfaction questionnaire with nursing services, 6) booklet as an educational medium, 7) Pneumonia toddler care skills equipment set: tepid sponge set, Steam inhalation, watches, thermometers, oximetry.

The research data collection process was carried out for 4 months starting from 29 May - 20 August 2024. and using the block method starts from the intervention group and then the control group. The Intervention Stage implements the Continuous Nursing Care Program (CNCP) by increasing the provision of education to parents which is carried out for 3 days of care.

Data analysis used univariate data analysis with frequency distribution and bivariate analysis with *wilcoxon sign rank test* and *mann whitney U test*. This research has been submitted to the Research Ethics Committee of the Tasikmalaya Ministry of Health with and has been declared worthy of research ethics with No. DP.04.03/F.XXVI.20/233/2024.

RESULT AND DISCUSSION

Table 1. Distribution of Characteristics of Toddler and Mother Respondents in the Intervention and Control Groups

Characteristic	Group Intervention		Group Control		Total	
	(n)	(%)	(n)	(%)	(n)	(%)
Toddler age (month)						
1-12	9	60,0	5	33,3	14	46,7
13-36	3	20,0	6	40,0	9	30,0
37-60	3	20,0	4	26,7	7	23,3
Gender						
Man	10	66,7	10	66,7	20	66,7
Woman	5	33,3	5	33,3	10	33,3
Immunization Status						
Complete	11	73,3	10	66,7	21	70,0
Incomplete	4	26,7	5	33,3	9	30,0
Status Gizi (BB/TB, BB/PB)						
Malnutrition	0	0	1	6,7	1	3,3
Undernutrition	1	6,7	4	26,6	5	16,8
Good nutrition (Normal)	11	73,3	8	53,4	19	63,3
Nutrition is at greater risk	2	13,3	2	13,3	4	13,3
Nutrition is more overwight	0	0	0	0	0	0
Obesity	1	6,7	0	0	1	3,3
Mother's Age						
21-30	7	46,7	7	46,7	14	46,7
31-40	8	53,3	8	53,3	16	53,3
Mother's Work						
IRT	12	80,0	13	86,7	25	83,3
Private	2	13,3	2	13,3	4	13,4
Guru	1	6,7	0	0,0	1	3,3
Maternal Education						
SD	5	33,3	5	33,3	10	33,3
SMP	6	40	6	40,0	12	40,0
SMA	3	20	3	20,0	6	20,0
S1/S2/S3	1	6,7	1	6,7	2	6,7
Experience of Caring for Toddlers with Pneumonia						
No experience	12	80,0	13	86,7	25	83,3
Have experience	3	20,0	2	13,3	5	16,7
Information About Pneumonia						
Never been informed	13	86,7	13	86,7	26	86,7
Have been informed	2	13,3	2	13,3	4	13,3
History with pneumonia						
Never	10	66,7	9	60,0	19	63,3
1 time	3	20	5	33,3	8	26,7
2x	2	13,3	1	6,7	3	10,0
Comorbidities						
None	8	53,3	8	53,3	16	53,3

Ada	7	46,7	7	46,7	14	46,7
Kindergarten Severity						
1-3	4	26,7	4	26,7	8	26,6
4-6	7	46,7	7	46,7	14	46,7
7-9	3	20,0	3	20,0	6	20,0
10	1	6,7	1	6,7	2	6,7
Sum	**15**	**100**	**15**	**100**	**30**	**100**

Table 2. Distribution of Respondents Based on Symptoms of Pneumonia, Care Problems, Parenting Stress, Quality of Life and Satisfaction of Inpatients in the Pre Test and Post Test Intervention Groups

Katageori	Mean	Std. Dev.	Minimum	Maximum
Symptom				
Pre test	16,7	6.5	10.0	27,0
Post test	16.1	7.9	2.0	30.0
Maintenance Issues				
Pre test	9.8	7.2	0,0	21.0
Post test	9.4	6.5	0.0	23.0
Parenting Stress				
Pre test	57.7	9.22	38.0	77.0
Post Test	55.6	9.29	36.0	77.0
Quality of Life				
Pre Test	17.6	12.4	2.0	46.0
Post test	14.8	10.9	2.0	46.0
Parent Satisfaction				
Pre test	48.8	5.67	36.0	58.0
Post Test	51.3	5.24	45.0	59.0

Based on Table 2. It showed most of the mean values in the intervention/treatment group for parenting stress in the pre test of 57.73 and a small part of the value of care problems in the pre and post tests of 0.00

Table 3. Distribution of Respondents Based on Symptoms of Pneumonia, Care Problems, Caregiving Stress, Quality of Life and Satisfaction of Inpatients in the Pre Test and Post Test Control Groups

Katageori	Mean	Std. Dev.	Minimum	Maximum
Symptoms of Pneumonia				
Pre test	12.7	6.2	2.0	23,0
Post test	12.8	6.2	2.0	23.0
Maintenance Issues				
Pre test	7.3	6.6	0,0	25.0
Post test	9.5	6.5	0.0	25.0
Parenting Stress				
Pre test	57.7	9.2	38.0	77.0
Post Test	57.6	12.7	38.0	96.0
Quality of Life :				
Pre Test	17.6	12.4	2.0	46.0
Post test	14.8	10.9	2.0	46.0
Parent Satisfaction				
Pre test	53.8	5.5	45.0	60.0
Post Test	54.9	5.3	45.0	60.0

Based on Table 3. It shows most of the mean values for parenting stress in the pre test of 57.73 and a small part of the value of care problems in the pre and post tests of 0.00

Table 4. Distribution of Respondents Based on Symptoms of Pneumonia, Nursing Problems, Quality of Life, Caregiving Stress, Inpatient Satisfaction in the Pre Test and Post Test Intervention Groups

Category	Pre test		Post test	
	(n)	(%)	(n)	%)
Symptoms of Pneumonia	15	100,0	15	100,0
Nursing Problems	15	100,0	15	100,0
Quality of Life				
Good	9	60,0	10	66,7
Bad	6	40,0	5	33,3
Parenting Stress				
Low	13	86,7	14	93,3
Keep	2	13,3	1	6,7
Inpatient Satisfaction				
Satisfied				
Highly satisfied	5	33,3	3	20,0
	10	66,7	12	80,0

Based on Table 4. It showed that the majority of the intervention group with good quality of life 10 respondents (66.7%) on the post test, low caregiving stress 14 (93.3%) on the post test and satisfaction of inpatients with the very satisfied category 12 (80.0%) on the post test

Table 5. Distribution of Respondents Based on Symptoms of Pneumonia, Nursing Problems, Quality of Life, Caregiving Stress, Inpatient Satisfaction in the Pre Test and Post Test Control Groups

Category	Pre test		Post test	
	(n)	(%)	(n)	(%)
Symptoms of Pneumonia	15	100,0	15	100,0
Nursing Problems	15	100,0	15	100,0
Quality of Life				
Good	6	40,0	4	26,7
Bad	9	60,0	11	73,3

Parenting Stress				
Low	13	86,7	14	93,3
Keep	2	13,3	1	6,7
Inpatient Satisfaction				
Satisfied				
Highly satisfied	5	33,3	3	10,0
	10	66,7	12	80,0

Based on Table 5. It showed that the majority of the control group with poor quality of life 11 respondents (73.3%) on the post test, low caregiving stress 14 (93.3%) on the post test and satisfaction of inpatients with the very satisfied category 12 (80.0%) on the post test

Table 6 Analysis of Wilcoxon Signed Ranks Test Quality of Life, Sputum Expenditure, Respiratory Rate, and Oxygen Saturation in the Wilcoxon Signed Rank Test Intervention and Control Group

Intervention Groups	Asymp. Sig. (2-tailed)	Control Group	Asymp. Sig. (2-tailed)
Symptoms of Pneumonia	0.593	Symptoms of Pneumonia	0.317
Nursing Problems	0.799	Nursing Problems	0.317
Quality of Life	0.007	Quality of Life	0.317
Parenting Stress	0.006	Parenting Stress	0.188
Inpatient Satisfaction	0.011	Inpatient Satisfaction	0.044

Based on Table 6, it was shown that the results of significance on quality of life in the intervention group were 0.007 < p value 0.05, while in the control group 0.317 > p value 0.05, caregiving stress 0.006 < p value 0.05 in the intervention group while the control group was 0.188> p value 0.05, while for inpatient satisfaction 0.011 < p value 0.05 while in the control group inpatient satisfaction 0.044 < p value 0.05

Table 7 Analysis of Mann Whitney U Test Symptoms of Pneumonia, Nursing Problems, Quality of Life, Parenting Stress, Inpatient Satisfaction in the Intervention and Control Groups

Component	Asymp. Sig. (2-tailed)	Conclusion
Symptoms of Pneumonia	0.270	Insignificant
Nursing Problems	0.220	Insignificant
Quality of Life	0,004	**Significant**
Parenting Stress,	0.835	Insignificant
Inpatient Satisfaction	0.189	Insignificant

Based on Table 7, it was shown that the results of significance to quality of life in the intervention and control groups were 0.004 < p value 0.05

Characteristics of Respondents of Mothers and toddlers

Age of toddlers

It shows that most of the age of toddlers is 1-12 months old, as many as 14 respondents (46.7%). The age of 1-12 months is the age classification of infants (babies). Children's immune mechanisms, especially infants and neonates, are very different from adults and are constantly evolving. Immunity grows from the womb and depends on several things. To improve health and immunity, various efforts should start from the antenatal period, focusing on nutrition and overall maternal health. Some of the disorder syndromes that often appear in infants are respiratory disorders, sepsis, enterocolitis, intraventricular hemorrhage, and neonatal death (Singh et al., 2021). Other studies also showed that the highest pediatric pneumonia data occurred at 0 to 12 months of age (57.1%) (Hafni & Darmawan, 2023). Children at the beginning of the year of life are still in the process of adapting to environmental changes and are susceptible to exposure to viruses or bacteria that cause an inflammatory response, in addition to the immune system in babies is still regulated, so at this age they are susceptible to infectious diseases (Kollmann et al., 2017; Lajqi et al., 2024).

Gender

The results showed that The gender of the respondents toddlers with pneumonia was male, 20 respondents (66.7%). This condition is aimed at There are differences in immune responses based on which it shows that women have a stronger immune response than men so they are less likely to be infected with the virus. The innate and adaptive immune response to viral infections differs between men and women.

Specifically, it shows that immune responses to the virus are usually stronger in women than in men. This has an impact that women are more immunoactive than infected male patients, more susceptible to immunopathogenic effects of viral infections, and experience more severe symptoms of viral infections (Gigantesco & Giuliani, 2011).

Immunization status and nutritional status

The results of the study showed that the immunization vaccine showed the majority in the complete category of 21 respondents (70.0%). The immune system in the body apart from the vaccine given must also be supported by good nutrition, activity patterns, sleep patterns and lifestyle (Trivedi & Saboo, 2020). There are two stages in providing complete immunisation to children. Infants aged 0-11 months receive complete basic vaccination, which consists of 1 dose of HB0, 1 dose of BCG, 3 doses of DPT-HB-Hib, 4 doses of Polio drops (OPV), 1 dose of injectable Polio (IPV), and 1 dose of Measles Rubella. Children aged 18-24 months received follow-up vaccination, consisting of 1 dose of DPT-HB-Hib and 1 dose of Measles Rubella (Sitaremi et al., 2023).

According to the World Health Organisation tahun 2019, the number of children who do not receive complete vaccination will contribute to 2.5 million cases of child death worldwide in 2019. Indonesia, as one of the developing countries, recorded 12% or 1.7 million children who did not receive complete vaccinations, which caused 10,294 child deaths (Maemunah et al., 2023).

Even though children have been given vaccines to increase immunity, poor nutrition, activity patterns and sleep patterns will also cause them to be susceptible to infections. The majority of toddler respondents in this study had good nutritional status, but there were also those with poor nutritional status, poor, more risk and obesity. Nutritional status is related to respiratory distress in toddler pneumonia so it needs to be managed quickly and precisely. A child's poor nutritional status can affect his immune system and make him more susceptible to infections such as pneumonia (Lembang et al., 2023).

Maternal respondents

Mother's Age, Education and Employment

Meanwhile, the majority of mothers are 31-40 years old, as many as 16 respondents (53.3%). Age in maternal respondents is a classification of early adulthood which includes the age that experiences a transition period, both physical trantition, cognitive/thinking (*cognitive trantition*), and social roles *(social role trantition*). There are various problems and emotional tensions, periods of social isolation, periods of attachment and dependence, changes in values, creativity and adaptation to a new life. With this age condition, it will also have an impact on other family members such as husband and children (Paputungan & Ilmu Pendidikan, 2023).

As for the education of the respondents, the majority of respondents were in junior high school (40.0%). The results showed that in children under five Children under five Children with mothers who did not go to school or did not finish elementary school had a 1.53 times higher risk of developing respiratory tract infections than children with mothers with a diploma or higher (95% CI: 1,163–2,013) (Yunitawati et al., 2023). The results of this study show that the majority of maternal respondents are housewives (IRT) 25 respondents (83.3%). A person who has work experience will relate to one's knowledge and behavior (Abolwafa & Mohamed, 2017)

The Effect of the *Continuous Nursing Care Program* on the Quality of Life of Pneumonia Toddlers, Stress Levels and Parent Satisfaction in Nursing Services

Quality of Life

There are determinants of pneumonia in toddlers, these factors include the mother's habit of washing hands before feeding her child, giving her baby formula for up to six months, giving her children zinc supplements, diarrhea in the last two weeks, and ISPA in the last two weeks. Based on the main data on the causes of pneumonia in toddlers in the community, proper and sufficient health education or education must be provided on how to prevent and treat pneumonia in the elderly (Kifle et al., 2023). Because children are an important part of our society and deserve well-being today, their quality of life is essential for the future (Wallander & Koot, 2016).

The results of the study showed that the provision of continuous nursing care (*Continuous Nursing Care Program)* was able to improve the quality of life of toddlers with pneumonia in the form of pneumonia symptoms and nursing problems, which were treated in hospitals. It is known that the provision of continuous nursing care is an act of nursing care that provides continuous or continuous action by involving the role of parents in providing full care to their children. Parents, especially mothers, are given education and skills in the treatment of pneumonia toddlers, so that when children show symptoms such as fever, cough and shortness of breath, parents can immediately take initial action and report to the nurse on duty. Early and fast treatment will be able to improve children's health conditions and children's quality of life.

Other research shows that with the implementation of nursing care protocols where nurses provide continuous nursing education to patients and families, they are able to reduce the duration of the day of treatment for children with pneumonia in the hospital (ELdin et al., 2018). The provision of continuous nursing care that is applied is also able to reduce the symptoms of pneumonia in the form of a decrease in temperature, frequency of breathing and coughing as well as pain felt by patients (Liu et al., 2021b).

Parenting Stress

Unexpected situations in the family life cycle are in the form of illness conditions and hospitalization of children. Many factors affect the stress level of parents of children who are hospitalized, including the psychological condition of parents and children, the health condition of the child, and support from family and medical personnel (Zdun-Ryżewska et al., 2021). Parents with toddlers who are treated with pneumonia need support when it comes to caring for their toddlers.

The results of this study showed that there was an effect of providing continuous nursing care with the provision of education, skills in reducing stress on parenting stress in the intervention group where there was a decrease in the level of parental care stress at a low level. This is supported by the results of other studies that show that the ability of mothers to take good care of their children during the treatment process and improve the child's condition will have an impact on reducing parental stress (Biswas et al., 2019). In addition, in the intervention group, there were toddlers who experienced recurrent pneumonia up to 2 times, which led to high clinical decision-making from parents (Abbene, 2021).

However, the results of the bivariate test showed that there was no difference between the intervention and control groups, this was because every parent was of course very worried about the condition of the child who was still an infant with pneumonia, it was shown

that the majority of the respondents' age was 1-12 months of infants. Where at that age the child is still unable to express the pain felt verbally, it is only shown in the form of symptoms that appear in the child such as the child often coughs, shortness of breath and often cries because of the discomfort felt. In addition, the data also shows that the majority of respondents under five have just been affected by pneumonia for the first time, which is related to the experience of parents in caring for toddlers with pneumonia (de Souza et al., 2019).

Satisfaction of Inpatient Parents

Parent satisfaction is an important indicator in determining the quality of health services and is a factor that must be known in an effort to improve the health service system (Fatah et al., 2022). The sense of satisfaction of patients and families has a positive direction where the high quality of medical services provided will have an impact on increasing patient and family satisfaction. The results of the study showed that the provision of continuous nursing care (*Continuous Nursing Care Program*) has an influence on parental satisfaction with toddlers with pneumonia while being treated in the hospital, both in the intervention group and in the control. Parents' satisfaction with the nursing care process provided is mainly influenced by the fulfillment of the need for information about the child's health condition during treatment, the child's care process while in the hospital and the privacy provided by the nurse while in the hospital (Kruszecka A et al., n.d.). Other studies have also shown that the family empowerment model used in the treatment of toddlers with pneumonia in hospitals has an impact on increasing family satisfaction during the treatment of their children (Nurhaeni et al., 2018).

CONCLUSION

The conclusion of the results of this study shows that the provision of continuous nursing care programs has an effect on improving the quality of life, reducing parental care stress and parental satisfaction with the nursing care services provided during the treatment of toddlers.

REFERENCES

Abbene, N. M. (2021). *Digital Commons @ ACU Reducing Parental Stress in Neonatal and Pediatric Intensive Care Units*.

Abolwafa, N. F., & Mohamed, A. H. (2017). Effect of Educational Program on Mothers Knowledge about Prevention of Pneumonia for their Children under Five Years. *IOSR Journal of Nursing and Health Science*, *6*(5), 5–12. https://doi.org/10.9790/1959-0605010512

Ali, S., Athar, M., & Ahmed, S. M. (2019). Basics of CPB. *Indian Journal of Anaesthesia*, *49*(4), 257–262. https://doi.org/10.4103/ija.IJA

Biswas, H. B., Chaimongkol, N., & Pongjaturawit, Y. (2019). *Correspondence to : Happy Bandana Biswas , RN , MNSc . Faculty of Child Health Nursing , Na- tional Institute of Advanced Nursing Education and Research (NIANER), Dhaka ,. 03*(04), 196–200.

Chuga, Z. R. N., Pico, O. M. A., & Erazo, A. P. A. (2024). Nursing care plan for the clinical management of children with pneumonia in Otavalo. *Salud, Ciencia y Tecnologia*, *4*. https://doi.org/10.56294/saludcyt2024.1254

de Souza, R. O. D., Borges, A. A., Bonelli, M. A., & Dupas, G. (2019). Functionality of the support to the family of children with pneumonia. *Revista Gaucha de Enfermagem*, *40*. https://doi.org/10.1590/1983-1447.2019.20180118

Dinkes Jawa Barat. (2020). Profil Kesehatan Jawa Barat Tahun 2020. *Dinas Kesehatan Provinsi Jawa Barat*, 103–111.

ELdin, N. A. Z., Omar, T. K., Ahmed, H. M., & Lamiaa A., K. (2018). Effect of A Nursing Care protocol on the Duration of Hospitalization of Children with Pneumonia. *Menoufia Nursing Journal*, *3*(2), 1–8. https://doi.org/10.21608/menj.2018.121019

Fatah, S. A., Mohmed, I. A., & Morsi, M. A. (2022). Parental Satisfaction With Nursing Care Provided For Their Children Undergoing Minor Surgeries. *Egyptian*

Journal of Health Care, *13*(3), 243–256. https://doi.org/10.21608/ejhc.2022.251530

Gigantesco, A., & Giuliani, and M. (2011). Quality of life in mental health services with a focus on psychiatric rehabilitation practice. *Ann Ist Super Sanità*, *47*(4), 363–372. https://doi.org/10.4415/ANN

Hafni, I., & Darmawan, E. (2023). Evaluasi Terapi Antibiotik Pada Pasien Bronkopneumonia. *Jurnal Education and Development*, *11*(1), 523–527.

Kementerian Kesehatan Republik Indonesia. (2021). Profil Kesehatan Indonesia Tahun 2020. In W. W. Boga Hardhana, Farida Sibuea (Ed.), *Kementerian Kesehatan Republik Indonesia*. https://doi.org/10.1524/itit.2006.48.1.6

Kifle, M., Yadeta, T. A., Debella, A., & Mussa, I. (2023). Determinants of pneumonia among under-five children at Hiwot Fana specialized hospital, Eastern Ethiopia: unmatched case-control study. *BMC Pulmonary Medicine*, *23*(1), 1–11. https://doi.org/10.1186/s12890-023-02593-3

Kollmann, T. R., Kampmann, B., Mazmanian, S. K., Marchant, A., & Levy, O. (2017). Protecting the Newborn and Young Infant from Infectious Diseases: Lessons from Immune Ontogeny. *Immunity*, *46*(3), 350–363. https://doi.org/10.1016/j.immuni.2017.03.009

Kruszecka A, Smoleń E, Cepuch G, Piskorz K, Perek M, & Gniadek A. (n.d.). *Determinants of Parental Satisfaction with Nursing Care in Paediatric Wards-A Preliminary Report. Int J Environ Res Public Health [revista en Internet] 2019 [acceso 12 de noviembre de 2022]; 16(10): 1-11*. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6572998/pdf/ijerph-16-01774.pdf

Lajqi, T., Köstlin-Gille, N., & Gille, C. (2024). Trained Innate Immunity in Pediatric Infectious Diseases. *Pediatric Infectious Disease Journal*, *43*(2), E57–E59. https://doi.org/10.1097/INF.0000000000004157

Lembang, N. D. R., Mikawati, & Pratiwi, R. (2023). The Relationship between Nutritional Status and Shortness of Breath in Children with Pneumonia at Mappi General Hospital, Indonesia. *Open Access Indonesian Journal of Medical Reviews*, *3*(4), 437–440. https://doi.org/10.37275/oaijmr.v3i4.318

Liu, Y., Ren, H., Guo, J., & Su, D. (2021a). Effect of continuous nursing on nursing quality and patient quality of life and satisfaction among children with pneumonia. *Journal of International Medical Research*, *49*(3). https://doi.org/10.1177/0300060521993691

Liu, Y., Ren, H., Guo, J., & Su, D. (2021b). Effect of continuous nursing on nursing quality and patient quality of life and satisfaction among children with pneumonia. *Journal of International Medical Research*, *49*(3), 1–5. https://doi.org/10.1177/0300060521993691

Maemunah, N., Susmini, S., & Tuanany, N. N. (2023). Faktor-Faktor Yang Mempengaruhi Kelengkapan Imunisasi Dasar Pada Bayi Di Posyandu Dewi Sartika Kota Malang. *Care : Jurnal Ilmiah Ilmu Kesehatan*, *11*(2), 356–371. https://doi.org/10.33366/jc.v11i2.4366

Nurhaeni, N., Rustina, Y., Agustini, N., & Enis Rosuliana, N. (2018). Impact of family empowerment model on satisfaction and children's length of stay in hospital. *Enfermeria Clinica*, *28*, 36–40. https://doi.org/10.1016/S1130-8621(18)30033-0

Paputungan, F., & Ilmu Pendidikan, F. (2023). Karakteristik Perkembangan Masa Dewasa Awal Developmental Characteristics of Early Adulthood. *Media Online) Journal of Education and Culture (JEaC)*, *3*(1), 2986–1012.

Quinton, L. J., Walkey, A. J., & Mizgerd, J. P. (2018). Integrative Physiology of Pneumonia. *Physiological Reviews*, *98*(3), 1417–1464. https://doi.org/10.1152/physrev.00032.2017

Singh, A., Kaur, H., Gupta, G., Naranje, K., Verma, A., Roy, A., Gautam, A., Pandey, A., Gupta, A., Jaiswal, R., Bajpai, S., Dwivedi, M., & Birthare, A. (2021). Enhancement of Immunity and Health in Neonates and Infants. *Journal of Neonatology*, *35*(3), 138–154. https://doi.org/10.1177/0973217921104433 2

Sitaremi, M. N., Soedjatmiko, S., Gunardi, H., Kaswandani, N., Handryastuti, S., Raihan, R., Kartasasmita, C. B., Ismoedjianto, I., Rusmil, K., Munasir, Z., Prasetyo, D., Sarosa, G. I., Oswari, H., Husada, D.,

Prayitno, A., Maddepunggeng, M., & Hadinegoro., S. R. H. (2023). Jadwal Imunisasi Anak Usia 0 – 18 Tahun Rekomendasi Ikatan Dokter Anak Indonesia Tahun 2023. *Sari Pediatri*, *25*(1), 64. https://doi.org/10.14238/sp25.1.2023.64-74

Society, I., Respirology, O. F., Pusat, P., Profil, M., Indonesia, K., Kesehatan, D., Jakarta, D. K. I., & Tiongkok, K. W. (2019). *PRESS RELEASE " PERHIMPUNAN DOKTER PARU INDONESIA (PDPI) OUTBREAK PNEUMONIA DI TIONGKOK*. *19*, 19–22.

Trivedi, G. Y., & Saboo, B. (2020). The Risk Factors for Immune System Impairment and the Need for Lifestyle Changes. *Journal of Social Health and Diabetes*, *8*(01), 025–028. https://doi.org/10.1055/s-0040-1715778

UN IGME. (2019). Levels & Trends in Child Mortality 2019. *United Nations Children's Fund*, 52.

UNICEF. (2019). Fighting for Breath in Indonesia. *Unicef*, *1*(1), 1–6.

Wallander, J. L., & Koot, H. M. (2016). Quality of life in children: A critical examination of concepts, approaches, issues, and future directions. *Clinical Psychology Review*, *45*, 131–143. https://doi.org/10.1016/j.cpr.2015.11.007

WHO. (2020). World Health Organization. Pneumonia. Fact sheet No. 331. August 2019. https://www.who.int/es/news-room/fact-sheets/detail/pneumonia. *Who New Pneumonia Kit 2020 Information Note*, *1*, 1–2. https://www.who.int/news-room/fact-sheets/detail/pneumonia

Yadav, R. K., Kumar, D., Singh, A., Ziauddin, M., & Singh, D. K. (2021). Clinical and microbial spectrum of community-acquired pneumonia in children of north India. *Tropical Doctor*, *51*(1), 71–77. https://doi.org/10.1177/0049475520971595

Yunitawati, D., Khairunnisa, M., & Latifah, L. (2023). Maternal Characteristics as Predictors of the Incidence of Acute Upper Respiratory Infection in Children Under Five Years Old in Indonesia. *Proceedings of the 1st International Conference for Health Research – BRIN (ICHR 2022)*, 506–517. https://doi.org/10.2991/978-94-6463-112-8_46

Zakeri, M. A., Khoshnood, Z., Dehghan, M., & Abazari, F. (2020). The effect of the Continuous Care Model on treatment adherence in patients with myocardial infarction: a randomised controlled trial. *Journal of Research in Nursing*, *25*(1), 54–65. https://doi.org/10.1177/1744987119890666

Zdun-Ryżewska, A., Nadrowska, N., Błażek, M., Białek, K., Zach, E., & Krywda-Rybska, D. (2021). Parent's stress predictors during a child's hospitalization. *International Journal of Environmental Research and Public Health*, *18*(22). https://doi.org/10.3390/ijerph182212019